REMARKS

Claims 1, 2, 4, 5, 7 and 9-11 remain pending in this application. Claim 1 has been amended to more clearly define the claimed invention by specifying that the fine fibers of the intermediate layer have a crystallinity from 17.8% or more to 34.3%. Support for this amendment can be found in Table 7 of the present specification (page 43) - the lower limit of 17.8% is shown as example 19 and the upper limit 34.3% is shown as example 20. Accordingly, no new matter has been introduced by this amendment.

Claims 1, 2, and 4-11 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Perkins et al. (U.S. Patent No. 5,178,932) in view of Warner (Fiber Science). The Office takes the position that Perkins et al. teaches essentially all the requirements of the present claims, but does not specifically disclose the claimed bulk density, intrusion index, pressure employed or solution viscosity. According to the Office, however, these claimed features would have been obvious because the same types and diameters of fibers in fabrics are used in the prior art and would be arrived at through the process of routine experimentation. With regard to the claimed crystallinity, which has been amended with the current reply, the Office has relied on the teachings of Warner to establish that polyester and nylon (polyamide) generally have a crystallinity of about 40%, which <u>was</u> on the outer limit of the claimed range.

The high tenacity laminated nonwoven fabric of the present invention is a laminated nonwoven fabric of a thermoplastic synthetic filamentary fiber layer/a thermoplastic synthetic fine fiber layer/a thermoplastic synthetic filamentary fiber layer, wherein the thermoplastic synthetic fine fiber is composed of a specific material, i.e., a polyester or a polyamide, and has a specific viscosity, i.e., a solution viscosity η_{sp}/c from

0.2 to 0.8 or a solution relative viscosity η_{rel} from 1.8 to 2.7, and a crystallinity of a specific range, i.e., 17.8% to 34.3%.

When the thermoplastic synthetic fine fiber satisfies the above conditions, because the fine fiber has high fluidity, the fine fiber can easily intrude into the upper and lower filamentary fiber layers and thus a high rate of intrusion, for example, intrusion index of 0.36 or more, is attained. As a result, because the anchoring effects of the intruded fine fibers increase, the laminated nonwoven fabric excellent in tensile tenacity can be obtained.

It is not clear how the Office can properly conclude that a person skilled in the art would arrive at the claimed parameters without any reason or guidance from the teachings of Perkins et al. While a person skilled in the art can be expected to optimize a result-effective variable when the prior art contains such direction, that type of guidance and direction is not provided by the teachings of Perkins et al. Accordingly, the prior art does not support the conclusion that the recited parameters would be the result of routine experimentation.

The magnitude of crystallinity also is important. As pointed out by the Examiner, polyester and polyamide generally have a crystallinity of about 40%. However, the polyester and polyamide used in the present invention have a crystallinity of 17.8% to 34.3%, considerably lower than that of conventional polyester and polyamide.

A high crystallinity lowers the bonding tenacity, and reduces the degree of intrusion. As shown in Table 7 of the present specification, when the crystallinity becomes about 40% the tenacity is lowered (see comparative example 14).

When the crystallinity is excessively low, the melt-blown fine fibers are exposed to the surface layer from the embossed portion or gaps among filamentary fibers. The fine fibers are softened and adhere to the thermocompressive bonding rolls to induce roll staining. The fine fibers adhering to the rolls stick to the fabric surface again, or peel off the fibers in the fabric surface; or the rolls take up the laminated nonwoven fabric being produced. As a result, stabilized production of the nonwoven fabric cannot be conducted. As shown in Table 7 of the present specification, when the crystallinity becomes about 14% roll staining is induced (see comparative example 13). Accordingly, the claimed crystallinity is neither taught nor suggested by the prior art.

Perkins et al. neither teaches nor suggests using meltblown fibers having a crystallinity within the claimed range. This is important to the claimed invention because crystallinity influences the degree of intrusion of the meltblown fibers into the two outer layers. The meltblown fibers of the polypropylene used in the Example (col. 12) of Perkins et al. have a crystallinity of about 50%, which is high relative to the values recited in the pending claims (see page 23, lines 4-8, of the present specification). Warner only teaches that the polyester and polyamide materials taught therein also have a crystallinity outside the claimed range. Accordingly, since neither Perkins et al. nor Warner, alone or in combination, establish a prima facie case of obviousness, this rejection should be withdrawn.

Prompt and favorable reconsideration is requested.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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